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CLAIMS

1. Method for producing a layer (2) of a first material embedded in a substrate (1) comprising at least one second material, characterised in that it comprises the following stages:

- formation in said substrate (1), at the level of the desired embedded layer and by a method excluding formation of a porous layer, of a layer of microcavities intended to serve as centres of nucleation and volume accommodation to produce said first material in said second material,

- formation of precipitate embryos from the nucleation centres formed, the precipitate embryos corresponding to the first material,

- growth of the precipitates from the embryos through species concentration corresponding to the first material and carried to the layer of microcavities.

2. Method according to Claim 1, characterised in that the layer of microcavities is formed by introducing gaseous species into the second material.

3. Method according to Claim 2, characterised in that the gaseous species used to form the layer of microcavities are chosen from among hydrogen, helium and fluorine.

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4. Method according to Claim 1, characterised in that the layer of microcavities is formed by a gas inclusion provoked during production of the substrate.

5. Method according to Claim 1, characterised in that the layer of microcavities is formed from the interface constituted by the solidarisation of a first substrate element and a second substrate element, providing said substrate.

6. Method according to Claim 5, characterised in that the layer of microcavities results from the presence of particles at said interface.

7. Method according to Claim 5, characterised in that the layer of microcavities results from the surface roughness of at least one element among the first substrate element and the second substrate element.

8. Method according to Claim 5, characterised in that the layer of microcavities results from the presence of micro-recesses at the surface of at least one element among the first substrate element and the second substrate element.

9. Method according to Claim 5, characterised in that the layer of microcavities results from stresses induced at said interface.

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10. Method according to Claim 1, characterised in that the precipitate embryos are formed from species present in the second material.

11. Method according to Claim 1, characterised in that the precipitate embryos are formed from species introduced into the second material.

12. Method according to Claim 11, characterised in that said introduction is carried out by thermally activated diffusion.

13. Method according to Claim 12, characterised in that, the formation of microcavities implementing a thermal treatment, the precipitate embryos are formed simultaneously with the microcavities.

14. Method according to Claim 1, characterised in that the growth of the precipitates is produced by concentration of species introduced into the substrate (1).

15. Method according to Claim 14, characterised in that the growth of the precipitates is produced by concentration of species introduced into the substrate by thermally activated diffusion.

16. Method according to Claim 14, characterised in that the growth of the precipitates is produced by concentration of species introduced under pressure into the substrate.

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17. Method according to Claim 14, characterised in that the growth of the precipitates is produced by concentration of species introduced into the substrate by means of a plasma.

18. Method according to Claim 1, characterised in that the growth of the precipitates is produced by concentration of species present in the substrate, under the effect of a thermal treatment.

19. Method according to Claim 1, characterised in that the formation of precipitate embryos and the growth of precipitates being two operations requiring a thermal treatment, these operations are carried out simultaneously.

20. Method according to any one of Claims 1 to 19, characterised in that the layer of microcavities is formed in a semiconductor substrate.

21. Method according to Claim 20, characterised in that the substrate (1) is in silicon and that the embedded layer (2) is a layer of silicon oxide.